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ABSTRACT

This final report to the U.S. Environmental Protection Agency was prepared by the Institute for Environmental Education (Cleveland) in the form of an environmental education guide for administrators. The contents are divided into seven parts: Introduction, Environmental Education--What Is It?, The Responsibility for Planning, Training the Cadre, Special Considerations for an Environmental Program, Community Relations, and Where Can You Go From Here? The institute staff has prepared related publications: a teacher's guide, workshop manual, activities guide, and indepth case histories of replicable environmental studies, single topic reprints, nonwritten curriculum guide materials, and a monthly newsletter containing annotated bibliographies, activities, resource references, etc. (PEB)

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An Environmental Education Guide for Administrators

SE 017 208

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An Environmental Education Guide

for Administrators

Edited by: Irene Sedgwick
Margaret Watkins

Prepared by
The Institute for Environmental Education
8911 Euclid Avenue
Cleveland, Ohio 44106

ACKNOWLEDGEMENTS

It was at the suggestion of our U.S. Environmental Protection Agency grant officers, Bernie LuAco and Kay Bela, that this final report to EPA was organized in the form of a guide. A succession of writers, starting with Irene Sedgwick, who interviewed people in a dozen states involved in early training programs, then Cindy Knapp, Bob Faber, and Margaret Watkins worked on this document. Margaret and one of the 1969 student trainees, David Kriebel, finally urged Institute staff Peter Gail, Debbi Lloyd, Tom Offutt and Joe Chadbourne to complete it. Nothing would have been accomplished without the early hours, relentless typing, and unflagging good nature of Sally Gardner.

The experiences, then, came from many, the writing from a few, and the funds from the U.S. Environmental Protection Agency, Grant No. 1TT1-WP-63-01. The opinions expressed here do not necessarily reflect the position of the EPA or other funding agencies, or their policies. No official endorsement by any agency should be inferred. However, we speak for all who shared in preparation of this guide when we say we hope it will be helpful to you.

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INTRODUCTION

This guide is written for the administrator who is considering an environmental education program for his school system. It was prepared by the Institute for Environmental Education and is one in a series of publications on environmental education addressed variously to teachers, administrators, students, and the community.

The administrator's guide is followed in the sequence by a teacher's guide, a workshop manual, activities guides and in-depth case histories of replicable environmental studies, single topic reprints, non-written curriculum guide materials, and a monthly newsletter containing annotated bibliographies, activities, resource references, etc.

The activities which evolved into the Institute for Environmental Education (IEE, the Institute) began in 1967 with a student environmental studies program at University School in Cleveland, Ohio. In 1969 that program became a teacher:student training program, the Tilton Water Pollution Project, at Tilton School in Tilton, New Hampshire. The Tilton Project was expanded the following year, with training programs at the Quincy Public Schools in Massachusetts, the George School in Pennsylvania, and again University School, Ohio. The Institute was incorporated in Ohio in 1971.

These years of pilot work were made possible by the timely assistance of Ned Ames and Bill Felling of the Ford

Foundation, Bob Snider and later Kay Bela and Bernie LuKco of the U. S. Environmental Protection Agency, William Morrell of the National Science Foundation, George Lowe of the Office of Environmental Education (HEW), and the staff of the Cleveland, Gund, and Jennings Foundations in Cleveland.

With the continuous reminder that their investments must be used to benefit as many students as possible, the Institute in 1972 initiated the Cuyahoga Heritage Project, designated a National Demonstration Project by the U. S. Office of Environmental Education (HEW). The Project is a large scale model (17 school systems as of this date) of the 1967 pilot program. While the emphasis of that earlier program has shifted to teacher training, the original educational goals and philosophy have been maintained.

It is our hope that the important elements in all of these experiences have been distilled and reported in this guide.

ENVIRONMENTAL EDUCATION--WHAT IS IT?

Perhaps environmental education can be described best in terms of actual school curricula since no one environmental program is exactly like another, though all share the same approach. The following excerpt is from a monthly newsletter for schools in the Northeast Ohio Cuyahoga Heritage National Demonstration Project (in environmental education). These and other environmental education activities have involved over 1100 teachers and students at the schools below.

> Demonstrations in the first segment of the spring meeting included: at Kirk Junior High School--studies on rats and bacteria; Davey High School--investigations of Fish Creek and a local park clean-up; at Saint Patrick's School--study of food prices; Independence High School--slide show on the Tinker's Creek watershed, demonstration of dissolved oxygen analysis, and test data; and at Collingwood High School--a food analysis revealing that of those tested McDonald's hamburgers have the most protein and the school cafeteria's the least.
>
> Presented in the afternoon were: studies on the Brandywine River watershed--Western Reserve Academy; observations on the in-house fish hatchery--University School; the problems of No Name Stream--Cardinal High School; study of a proposed shopping center site, identification studies of local (backyard) flora and fauna, and soil and water quality studies--Beachwood Middle School.

Although they differ in content with the issue or problem under investigation, each of these studies teaches a common process--how to analyze and handle an immediate problem, which may or may not have a ready solution. The facts of an issue

and the learning how to cope are equally important. It is this combination of a generalized process and particular content that define environmental education. The aim of an environmental studies curriculum is a student who, on graduating from high school, feels responsible for himself and his community and has acquired, from first hand experience, the skills, insight, and incentive to translate concern into effective community action--a citizen self-learner.

What students should participate in an environmental program? Ideally, every student. The studies cited above were conducted by average students from a variety of schools. The moment a child feels curious about the world about him, he is ready to begin environmental education. Each individual school must decide when to initiate environmental studies. Because every program will be tempered by the school's basic teaching philosophy, faculty and school interest, structure, teaching resources, student interests, no single plan is universally applicable.

How have schools initiated environmental studies curricula? The studies above are a product of urban, suburban, and rural schools, public, private and parochial schools, schools large and small. While each school has its own way of operating, schools in which environmental education has been integrated successfully into the regular academic curriculum are generally those where the administration took the following steps:

1. Established an environmental education committee, or its functional equivalent, to create a program plan.

2. Selected teams of teachers and students to be trained as cadre to initiate environmental studies and to staff in-service environmental education training workshops.

3. Assigned the committee responsibility for realizing the special requirements of a good environmental education program, e.g., longer time periods, additional transportation, flexible grading system, new curriculum materials, etc.

4. Helped initiate a new kind of relationship between the school and the community through personal contacts, appropriate use of the media, service projects, etc.

5. Authorized the committee and cadre to seek outside assistance from consultants, Federal agencies, other schools, and community persons to solve specific problems in getting started.

What is the cost of an environmental education program? We have at this time no direct answer to the question of cost, though we know for a fact that most schools simply reallocate existing funds from one or more of the traditional discipline areas, generally sciences, for environmental education. Additional funds have been obtained from a variety of sources, detailed under Special Considerations (See page 13).

A word of caution. Environmental education is not a course or curriculum. It is a process that applies to any grade or discipline. Some of your teachers are already using the process; for others, environmental education is a totally new and terrifying approach to education. To these teachers, environmental education means working in areas in which they are not authorities; it means studying with students as partners; it means learning how to understand the other fellow's point of view; and it means coping with large clusters of excited students who contribute to the process and help determine and develop content.

It is our hope that in reading this guide you will be able to appreciate what an open-ended, hands-on program can mean for your school system.

THE RESPONSIBILITY FOR PLANNING

The school administration must assume a major responsibility for overall program planning. We suggest that you immediately organize a steering committee made up of representatives from the administration, faculty, student body, and community. Select the teachers who will initiate the program and include them in all phases of planning. If you have already initiated a program without a committee, appoint one now.

Why is the committee so important? In 1969 twenty-two teacher:student teams from twelve states attended a three-week workshop in environmental education at Tilton School in Tilton, New Hampshire. They trained, developed plans for the coming school year, wrote hundreds of environmental activities (which are now part of the Institute's Guide Series), formed strong personal associations with other participants, and dispersed with high expectations and great confidence. Lacking support from their school administrations, however, and isolated from one another except via an itinerant coordinator and a periodic newsletter, Tilton trainees found it very difficult to implement summer activities back at school. They were unable to infect colleagues with their enthusiasm, and when a Tilton trainee transferred to another school, the environmental education program generally went with him.

As a result, trainees recommended establishing local

environmental education consortia, which they dubbed clusters. In 1971 commuter based training sessions were held in the cluster centers at Quincy, Massachusetts, Newton, Pennsylvania, and Cleveland, Ohio. Even then, only in Pennsylvania and Ohio, where strong outside support committees, Project KARE and IEE, were fully operational, did the teachers successfully incorporate significant environmental education programs into their respective schools. Elsewhere workshops had involved and excited participants, but failed to initiate lasting programs back home because the administration, community, fellow faculty, and students did not give trainees time, understanding, sufficient power, backup, resources, endorsement, and tools to do the job.

The major issues which the committee must be prepared to address are:

1. faculty resistance to environmental education
2. appropriate teaching resources
3. evaluation and grading procedures
4. scheduling time for environmental investigations
5. space
6. permission to leave the school grounds, transportation, liability
7. money
8. community relations

In considering some of these issues, you may want the advice of people with experience in environmental education. The U.S. Environmental Protection Agency, the Office of Environmental Education (HEW), and the Bureau of Land Management and National Park Service (both Department of the Interior) may be of assistance.

You may also want to visit other schools which have ongoing environmental education programs. A list of possible contacts

in your region may be obtained from the Office of Environmental Education or any of the fifteen School Environmental Education Network (SEEN) organizations listed at the end of this guide.

Parents, the editor of a local newspaper, agency personnel, businessmen, and others involved in the community can obviously be important to your school's environmental education program. We caution against appointing a highly visible political figure to the committee, however, since environmental problems can be politically sensitive issues, and a political figure could suggest a program bias.

In many parts of the country additional help may be available to the committee from outside organizations which have evolved in response to the same need for clusters and regional coordination realized by Tilton trainees. Among the existing environmental education centers are the fifteen SEEN organizations mentioned above, which informally associated in February, 1973.

Representatives from an environmental education center can assist you in presenting the philosophy and working components of your school's environmental education program to the school and local community, advise you on specific problems, and perhaps most importantly, train an initial cadre of teachers and help them to organize their own inservice training program for other teachers in the school.

Project KARE, for example, coordinates environmental education programs for schools in five Southeast Pennsylvania counties, operates a resources center, provides environmental education

consultant services, and funds promising environmental programs. The Environmental Education Council National Capitol Area in Arlington, Virginia has sponsored a series of introductory workshops in environmental study skills and curriculum design and coordinates environmental education activities regionally. With students at J.F.K. Prep in St. Nazianz, Wisconsin, Father Melvin Tracy issues "Newsletter In Want Of A Name" to help coordinate schools in central Eastern Wisconsin and instructs research workshops. The Region X Education Service Center in Wilburton, Oklahoma has been organized to provide seventy-two school districts within seven Southeastern counties inservice training for school personnel, environmental education materials, and teacher assistants. The Institute for Environmental Education offers inservice support to teachers and students in Northeast Ohio schools and graduate training through affiliation of IEE staff with Cleveland State University.

By no means an exhaustive list, these programs illustrate various teacher training and support mechanisms individual schools and school systems have developed through regional environmental education centers. Large school systems have provided these or similar resources by hiring a full time environmental education curriculum specialist to supervise overall program operations and provide teacher support. In each case, the program established has been shaped by local requirements. Every program, however, reflects the same need for teacher support and a full commitment to environmental education from the administration, participating teachers, and committee staff.

TRAINING THE CADRE

The best method we have found for introducing environmental education into the regular school curriculum and insuring a continued program of environmental studies is to prepare an initial corps of teachers to become cadre, and assign them the responsibility for training others. The three year pilot Cuyahoga Heritage Project in Northeast Ohio is based upon this cadre concept, with three years the time frame for reaching a significant number of teachers.

In turn, the best method of developing that cadre is to start them simultaneously at a start-up, or awareness, workshop. By start-up workshop we mean a one- two- or three-day training program characterized by the following criteria, which are summarized from An Environmental Education Guide for Workshops (see inside front cover):

1. Trainees are teams of teachers and one or more of their students; department chairmen, curriculum coordinators, principals, and superintendents may also participate as team members.
2. The teams represent different disciplines within a single school, and neighboring schools in one region.
3. Workshop studies are actual community studies similar to those which will be conducted by the trainees on their return to school.
4. Trainees experience process skills and at least one problem to such an extent that the study is replicable in their schools.
5. Trainees formulate an organizational plan for subsequent cross-training, pooling of equipment, cooperation on investigations, etc.
6. Trainees return to school with written materials and plans to begin environmental education.

Moreover, each workshop permits trainees to join with others in the same venture. By working together participants acquire the the kind of confidence and understanding they may need to initiate an environmental program in their home school.

An awareness workshop is based upon the following assumptions about learning which are basic to the process of environmental education and cited here from a joint publication by the National Education Association and the National Park Service (see page 30):

1. The learner learns best when he is actively engaged in what is being taught; he learns by doing.
2. The learner learns best when he is using all his senses.
3. Each learner has unique ways of processing information and experience.
4. The learner learns something new in relation to something he already knows.
5. The learner learns what seems important to him--what he feels a need to learn.
6. Discovering for oneself generates a sense of excitement and satisfaction that reinforces learning.
7. Most formal learning occurs in groups, and all groups have dynamics or interacting forces that can either help or hinder learning.

Teacher:student cadre returning from a workshop will have encountered these assumptions. Each workshop is a model for individual school programs. At a workshop teacher:student teams spend one to three days at a residential site, often a National Park Service facility or college campus. Emphasizing teamwork and respect through random grouping, informal structure,

and group decision making, trainees learn about local environmental problems from community people. They then divide into groups, select an issue of interest, and initiate a full field investigation.

After initial studies teams return to the workshop site to analyze their data and redirect inquiries.

Finally, under staff direction the entire group attempts to relate the process to the classroom. Arrangements for interschool exchanges, further training, and program coordination are initiated, and trainees return to schools with a new sense of purpose.

Awareness workshops may be sponsored by the U.S. Office of Environmental Education (OEE), school systems, private foundations, or environmental agencies. In 1972-73 the Office of Environmental Education sponsored several start-up workshops and at the time of this writing has requested funds to continue that "Heritage Workshop" series. The Institute for Environmental Education and SEEN associates also conduct awareness workshops independent of the Federal program.

The important point is that when cadre have participated as trainees once, and perhaps as staff assistants on a second occasion, they can then conduct their own workshops to train other teachers on the staff. In the Cuyahoga Heritage Project 1972 summer trainees were staff for the 1973 summer program. During the academic year when the Institute was conducting workshops throughout the country, first year teacher:student cadre served as assistant workshop staff. This procedure both reenforces initial training and at the same time infects new trainees with a sense of fresh reality.

A list of scheduled workshops or trained cadre in your area or information on how to organize a workshop yourself is available from the Office of Environmental Education or from I.E.E.

SPECIAL CONSIDERATIONS FOR AN ENVIRONMENTAL PROGRAM

Environmental education differs from the traditional school curriculum in a number of ways.

An environmental curriculum draws students from the classroom into the community. Your students will be meeting with public officials, conducting surveys and polls, attending hearings, testing air and water quality, building equipment, working in the school's laboratory, perhaps even teaching their own courses or traveling to various parts of the state or country to meet other students with similar interests.

They will be out in the field--inside homes, along streets, on rapid transits, in hospitals, parks, cemeteries, radio stations, streams, at shopping centers, ponds, woods, airports, waterfronts--wherever people shop, dogs stray, algae grow, servicemen repair, citizens congregate, communications generate--

in short, everywhere.

Perhaps most importantly, your students will be working with teachers as colleagues, exploring with them their surroundings, discovering relationships, and developing studies for in-depth analyses of environmental problems.

New learning situations such as these may or may not disrupt established school procedures. Some of the major issues raised by environmental programs in the past have been: resistance to educational change, teaching resources and standards for evaluation and grading, scheduling for full field investigations, space, transportation, liability, and cost. This chapter illustrates some of the ways these issues have been handled, in some cases anticipating the sequel Environmental Education Guide to Teachers (see inside front cover), and concludes with a description of the Cuyahoga Heritage National Demonstration Project in regional coordination of environmental activities.

One of the immediate concerns with which an administration may have to deal is resistance to educational change, from both the school and the local community. Parents and faculty in particular may be alarmed by an academic curriculum designed around local community issues. They must be informed of the school's environmental education program--its educational goals and objectives--before students actually begin field work. Sound out your constituents. Don't attempt to force change. Work only with interested faculty and students whose parents express confidence in the program, but make the most of each opportunity to expand it.

A second concern for the administrator of a school environmental education program is curriculum materials. Environmental education begins in the real world where there are neither infallible experts nor categorical answers. That fact makes learning real, exciting, and valuable. Students begin to take their work and themselves seriously. What they are doing is professionally significant. For these reasons, textbooks per se do not lend themselves well to environmental studies. Question-oriented curriculum activities guides, newspapers, magazines, libraries, local officials, the man in the street--these are the resources of an environmental education program. Environmental education guides provide the process, public information sources, the problems. The process and problems together create the curriculum.

A third consideration may concern grades and evaluation. The matrix on the following page was prepared by a student and identifies sixteen possible areas in which to evaluate a school environmental program overall. Administration, faculty, student, and community opinion are plotted against educational and environmental aspects and teacher and student input. Four areas deal directly with student performance.

The chart suggests why many teachers have found it difficult to measure a student's performance by traditional methods. An environmental studies curriculum treats the process of problem solving with the same emphasis as content development, and growth in any one of a number of skills deserves recognition. Some teachers have responded to this need for more comprehensive standards by shifting from letter or number grades to pass/fail grading.

THINGS TO BE EVALUATED:

	The Educational Aspect of the Program	The Environmental Aspect of the Program
Ways in which the Administrator might evaluate:	Feedback from teacher about how students are learning. Feedback from parents and news media about same. *Mostly word of mouth.	Feedback from community on improvements in Q of L. *Newspaper and other media; personal contact.
Ways in which the Teacher might evaluate:	Improvement in basic skills of kids. Increased interest in school and learning. Better behavior. Partnership. *Observation; standarized tests (YUCK).	Whether he and students detect improvements in quality of environment. Community acceptance of program. *Community participation, news media, community awards.
Ways in which the Student might evaluate:	Whether he feels he is learning or not; feels capable of doing more real things after course. Whether he likes school more. *Talking, writing.	Community recognition. Interest of other kids. *Media reports about students, awards, jobs, appointments.
Ways in which the Community might evaluate:	What parents learn from kids, and how much. Whether there are better community - school relations. *Personal contact, news media.	Changes in Q of L. Increases in environmental awareness. *Citizen meetings, press reports, citizen's groups being formed.

The Teacher	The Student
The excitement of teacher in teaching. His working with other faculty. Faculty response. *Talk.	Feedback from teacher and community. *Written reports, news reports, talk, P.T.A.
How happy he is as compared with before. How he feels about his work. *Thinking.	Class contribution. His/her work with other kids. *Reports, projects, notebooks, outside work, talk and observation.
How exciter he/she is. How much he/she trusts kids, lets kids follow interests. *Talk and observation.	Whether he/she feels there is a contribution being made; feels positive towards self; relates to others more effectually; has new skills, knowledge. *Thinking.
Recognition the teacher gains in community. *Awards, media reports, appointments.	The recognition he/she gains in community. *Awards, media reports, appointments.

*means the form that that evaluation takes

Others average three separate assessments, one by the teacher, a second by the student, and a third by his classmates. In still other situations teachers evaluate performance by the community's assessment of the student's work - by professional, real world standards.

Time and again students who are involved in environmental education activities have shown a marked overall improvement in their academic work. Both parents and teachers have also noted that students act more responsibly and their relationships with teachers, peers, parents, and other adults are more rewarding.

In terms of regular school operations, a major area of concern for the administrator initiating a school environmental education program is often scheduling. Almost invariably field work requires longer blocks of time to complete than a regular classroom activity. Generally speaking, teachers have arranged enough time for community investigations on a makeshift basis by scheduling their classes before or after a study hall or lunch period or back-to-back with team teachers and/or by working after school and weekends. Working around scheduling restrictions, students have designed studies in which observations and measurements of environmental indices like water and air quality, noise levels, garbage and litter, traffic flow, paving, or unattended animals are made en route to and from school, with the regular school day used for analyzing and using data.

Some schools have implemented special provisions for environmental education. In the Cleveland area, for example, the East

Cleveland and Beachwood school systems have organized students into class units of from four to five teachers and 100-120 kids who design their own schedules for the day, week, or month. Other Cleveland area schools have adopted optional programs of independent study, releasing students from one or more regularly scheduled courses for varying time periods - several weeks to a year or longer. Still others are awarding students who intern at an environmental organization academic credit for their work.

Whatever your framework and commitments, remember that your teachers and students will need relatively big blocks of time for satisfying involvement in community investigative activities.

The need to leave unfinished work set up over extended time periods may also raise complications. Cuyahoga Heritage Project schools have variously avoided limiting their environmental education studies for want of space by a) converting a deserted Nike site into a land laboratory; b) changing an empty room in the county library into a water analysis laboratory and public environmental information center; c) remodeling a janitor's closet in the school building for senior high environmental studies; d) giving all the students who use the same classroom a stake in a given project and its outcome.

Transportation becomes an issue when a study site or source of information is not on school grounds or within walking distance of the school. Frequently arrangements have been made for parents, community organizations, or student interns to drive students to and/or from a given destination. High school students have provided their own transportation, teachers have qualified for bus

driver's licenses, and students have obtained free passes or discount rates to use public transportation.

Leaving school grounds invariably raises the question of liability. In our experience liability has not been a problem. Perhaps this is luck, but more reasonably it seems to be a result of two factors:

1. Students participate in planning where they will go and what they will do, and therefore take care of themselves better than if they had been told where to go and what to do.
2. Usually a substantial number of older people are involved in a field investigation, either as student interns, student teachers, community resource people, or parents, or teacher colleagues.

Inviting older students to work with younger students creates a climate for learning that is productive for all. Time and again the feeling of mutual trust generated by including students as assistants has minimized the problems of uncooperation, disinterest, (feigned or otherwise), and resistance. Their perspective offers your academic program a unique and enriching contribution.

Most school systems take full precaution to inform parents of what students will be doing, via letter, distribution of student proposals, parents' nights, open houses, newspaper articles. Release forms may relate to a specific trip or give blanket authorization. Never is an administrator or teacher protected against blatant negligence.

The cost of a school environmental education program varies from school to school, depending on the nature and scope of the program, existing facilities, degree of regional coordination, etc. Costs generally fall into four broad categories, 1) teacher

training, 2) curriculum materials--including equipment, 3) transportation, and 4) additional personnel.

Since environmental education usually extends existing scholastic programs, most of the above costs are probably already covered in the school's present budget, though under different headings. By involving students in the effort to minimize or circumvent project costs, the school may be able to eliminate any additional program expense. The discussion which follows elaborates on various ways schools have met program needs without excessive cash outlays.

(1) The start-up workshops described earlier in this guide have been designed to help establish self-sustaining school environmental programs by illustrating to teacher:student cadre who attend how they can run workshops for teaching colleagues back at school with the skills they have developed at the workshop and the resources available to them at school. In addition, the growing interest in environmental education has prompted a number of universities to add to their graduate education offerings introductory and inservice courses in environmental education. Information on university training may be obtained from Kay Bela, Office of Training Grants, U. S. Environmental Protection Agency, Washington, D. C. 20460.

(2) A teacher teaching an environmental curriculum for the first time may want to work from teaching guides. Curriculum materials available from the Institute for Environmental Education may be copied by schools for maximum use at minimal cost. Once a teacher feels confident of his teaching skills, he can develop

his own environmental curriculum. At this point, his principal curriculum needs become reference materials and equipment. Research centers, libraries, and community organizations can be encouraged to contribute to the school's environmental education program by donating material for an environmental studies library, and industries, technical materials and/or assistance.

On a number of occasions used equipment has been borrowed or bought from university affiliated research centers and local industries. Every state has a depot of new and used government surplus materials available to schools and other non-profit institutions. The equipment is generally reliable and can be obtained at about 95% discount. Detailed information is available from your State Board of Education. You may also want to consider some type of interschool equipment rental system, making specialized equipment available to students at low cost to each individual school. Finally, students can construct their own equipment, as part of the learning process. For example, a group of eighth grade students at a Cleveland school built an air quality monitoring device from a discarded vacuum cleaner with assistance from a NASA employee, and from there went on to construct a spectrophotometer for their environmental studies.

(3) Elsewhere in this chapter some of the ways to avoid expense for transportation have been cited. Again, (4) the cost for additional personnel can be minimized by including older high school students, college interns, and others in your environmental studies program on a regular basis.

Additional funds may be available on a match grant basis from

local industries, private foundations, philanthropic organizations, the school board, parents, or friends. In Cleveland, Ohio a large suburban school system recently received an anonymous gift for hiring a full time environmental education specialist for three years to initiate and supervise an environmental program. Other environmental programs have also been funded by the local community, particularly when an outside agency was established to coordinate environmental education activities regionally. Funds from the Junior League of Cleveland and three local foundations enabled IEE to hire Work/Study students and college interns to assist with Cuyahoga Heritage environmental studies. Cleveland foundations have also contributed funds directly to school systems for environmental programs.

The availability of Federal funds from the Office of Environmental Education is contingent upon Congressional appropriations in 1974. In the past funds from this office have been provided for teacher training, curriculum development, and community action programs under the Environmental Education Act of 1970. The U.S. Environmental Protection Agency has no funds for training but may underwrite field monitoring programs. The National Science Foundation is increasing its emphasis on change in science education in the classroom and may have funds for program costs. State revenue sharing funds earmarked for environmental education may also be available.

Once a program is fully underway, it may be possible to underwrite the cost of any given project by arranging for an agency or business which will benefit from the project to reimburse stu-

dents for costs incurred. Contractual agreements for student services have been successfully negotiated in a number of instances by students in Cuyahoga Heritage Project schools. Projects may also be specifically designed to generate revenue.

For teachers new to environmental education some form of regional coordination of school environmental programs provides an extremely valuable support mechanism. In response to expressed needs of teaching staff, school systems in the Cleveland-Akron area (Cuyahoga River watershed schools) have associated in the Cuyahoga Heritage Project and engaged the outside services of IEE. Schools in the Washington, D. C. area and contiguous Virginia and Maryland counties have organized a similar support organization. Others are evolving elsewhere in the country.

Through a mobile extension service, directed by Dr. Peter Gail, professor of Environmental Studies, and staffed by high school and college interns, IEE currently provides teachers and students the following services and opportunities: assistance in field investigations; technical instruction and guidance; equipment rental, inhouse laboratory, and lending library and resources center of student investigative experiences; community contacts to facilitate contract services; graduate credit in environmental education at Cleveland State University; a monthly newsletter and activities guides subscription; a van for field studies; coordination of monthly meetings hosted by member schools at which students exchange ideas and information; liaison with media. At each school the extension service works through teacher:student

cadre trained in environmental education.

The Cuyahoga Heritage Project was designated a National Demonstration Project to further develop and disseminate the concept of regionalized environmental programs. Environmental awareness workshops, the proposed Federal Heritage Workshop series, and the School Environmental Education Network have been developed with regionalization in mind. To institutionalize a scholastic program that departs from traditional teaching methods and places new demands on faculty, students, and administrative staff, a regional support system may provide the most viable means of building momentum and effecting change.

COMMUNITY RELATIONS

Community rapport is extremely important to a school environmental education program since it is with community people and institutions your teachers and students will be working.

Probably the best place to begin developing community ties is in your immediate school community. Invite teachers and students to represent workshop or ongoing program activities at meetings of the faculty, school board, or PTA,at school assemblies, back-to-school nights, open houses, etc. Thereafter, make an effort to keep parents and friends informed of environmental activities. Students have made very effective presentations using movies, slides, and demonstrations to illustrate environmental studies.

From school assemblies students in Cuyahoga Heritage schools have developed programs for established community groups. Student-

initiated field trips, talks, workshops, and seminars on environmental issues have been organized for Lions and Kiwanis Clubs, Jaycees, church organizations, garden clubs, and others to help bridge school-community gaps. Many of these efforts have resulted in unsolicited pledges of volunteer help, donations of equipment, and introductions to other community organizations and potential resource people.

Involving community leaders also helps to establish the school's environmental program in the community. School committee members in the past have written personal letters to potential resource people, notifying them of the program and inviting their help. A list of possible community contacts is then circulated among teachers in the program. Once a contact has expressed interest, efforts are made to keep him informed of program developments.

Newspapers, magazines, television, and radio publicity can help significantly in explaining the program to the community at large. Your school committee may want to register in the U.S. Environmental Protection Agency's President's Environmental Merit Award Program, which recognizes students for singular achievement in environmental protection. In seeking publicity for an environmental education activity, we suggest that you:

- Keep teachers in the background. Kids doing things is what environmental education's all about. Let kids join in media interviews; put their pictures in newspapers; have them present the program to reporters.
- Concentrate on the process of learning, rather than the detailed content. Present the subject of study in its totality.

Introduce the officials responsible for dealing with the problem; cite problem economics, discuss how different people see the problem, what tests you are running, applicable laws, etc. Set the process in a meaningful context.

In the fully operational stage, service programs can help solidify school-community ties. In the Cuyahoga Heritage Project, for example, students are conducting water quality monitoring projects for state and Federal agencies. A review of their work is reported in the Office of Education's January-February, 1973 issue of American Education. Similarly in the Stony Brook-Millstone Watershed Project, headed by Mrs. Coe Huckabee at Peddie School, Hightstown, New Jersey, teachers and students from ten high schools, two colleges, and several youth and citizen groups have developed watershed studies specifically for the Board of Health. In both cases the students' actions have given a useful focus to environmental studies, provided community agencies with needed informa-

tion, and helped to locate the school in the community.

Although it is no panacea for community environmental problems, environmental education does promise a viable educational program, built upon precareer experiences in handling community problems. Your students can benefit and learn from the community in which they will participate as adults, and the community in turn may well benefit and learn from them.

WHERE CAN YOU GO FROM HERE?

Although you, your committee, and the cadre are the chief architects of your school environmental education program, the following individuals and organizations may be helpful to you as guides.

I. General handbooks, guides, and other material written to the same end as this guide.

Environmental Education Programs and Materials, PREP Report #33, 99 pp., available from U.S. Department of Health, Education and Welfare, Publication (OE) 73-27639 or U.S. Government Printing Office, 1972-474-707/181, Washington, D.C. 20402. Review of selected programs and materials, problems and recommendations related to program development and implementation; case studies, brief descriptions of selected programs, projects and materials plus information sources and ERIC research entries. Highly recommended.

Institute for Environmental Education, Environmental Education Guide Series, 8911 Euclid Avenue, Cleveland, Ohio 44106. A list of publications for administrators, teachers, and workshop directors, including activities for the classroom/community, in-depth case histories, reprints, monthly newsletter.

National Park Service, Division of State and Private Assistance, Environmental Education Reference Sources for Development of Programs and Sites, U.S. Department of the Interior, Washington, D.C. 20240.

Office of Environmental Education, "Guidelines for Preparation of Proposals, FY '74", U.S. Department of Health, Education and Welfare, 400 Maryland Avenue, Washington, D. C. 20202. Good background on philosophy, requirements for Federal funding.

Stapp, William, "Development, Implementation, and Evaluation of Environmental Education Programs, K-12", 20 pp., paper, 1973, available from Office of Environmental Education, 400 Maryland Avenue, Washington, D. C. 20202.

II. Information on Workshops.

Institute for Environmental Education, An Environmental Education Guide for Workshops, 20 pp., paper, 1973, 8911 Euclid Avenue, Cleveland, Ohio 44106. Responsibilities of the host,

site, and program managers before and during a workshop. ($2.25)

National Education Association and National Park Service, A Guide to Planning and Conducting Environmental Study Area Workshops, 50 pp., paper, 1972, available from the National Education Association, Washington, D. C. 20036. Excellent in-depth rationale and structure for 1-3 day workshops. ($2.25)

Weiksnar, Melissa, and Jonathan Gormley, Nottingham Water Analysis Workshop of 1972, paper, Nottingham Water Analysis Workshop, 175 Nottingham Terrace, Buffalo, New York 14216. Describes one week summer workshop conducted by two high school students. ($1.00)

III. Films, publications suitable for presentation to administration, committee candidates, the public, etc.

"The Cuyahoga Under a Microscope", Ohio Schools, Vol. 2, No. 17, December 22, 1972, reprints available from IEE, Cleveland, Ohio. A 3 page report on Kent School's project in the Cuyahoga Heritage Project.

Office of Environmental Education, "Ecological Drums Along the Cuyahoga", American Education, January-February, 1973, available from HEW, Washington, D.C., also, reprints, from IEE, Cleveland, Ohio. Five page article on Cuyahoga Heritage Project, 50% photographs.

U.S. Environmental Protection Agency, "Come Learn With Me", 1972. Available for rent from Talking Pictures, 160 East Grand Avenue, Chicago, Illinois 60611; for sale from the Institute for Environmental Education, Cleveland, Ohio 44106. 24 minute color film. ($1.00)

IV. People, agencies, organizations with a special interest, knowledge, programs.

A. GENERAL

Bureau of Land Management
U.S. Department of the Interior
Washington, D.C. 20240

Developing curriculum series on BLM sites.

ERIC Information Analysis Center
for Science, Mathematics, and
Environmental Education
400 Lincoln Tower
Ohio State University
Columbus, Ohio 43210

Environmental education clearinghouse. Publishes monthly

abstract journal of significant publications and programs, with semi-annual and annual cumulative indexes; also ERIC newsletter, containing references and "news notes".

National Park Service
U.S. Department of the Interior
Washington, D. C. 20240

Directs national environmental study area (NESA), national environmental education development (NEED), and national environmental education landmark (NEEL) programs. Seven regional offices. Also co-sponsors with UNESCO, Students Toward Environmental Participation, (STEP), autonomous program for environmental education and action operated by and for high school students.

National Science Foundation
1800 G Street, N.W.
Washington, D. C. 20006

Write for proposal guidelines.

Office of Environmental Education
Office of Education
U. S. Department of Health, Education and Welfare
400 Maryland Avenue, S.W.
Washington, D. C. 20202

Sponsors Heritage Workshop series, coordinates environmental education activities of Office of Education.

U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D. C. 20460

Sponsors President's Environmental Merit Awards Program; possible source of funding.

B. BY STATE

Mrs. Merlin M. Moore
Coordinator of Economic and Environmental Education
State Department of Education
State Education Building
Little Rock, Arkansas 72201

Jerold C. Kindred, Mike Doyle
Shelter Institute
149 Ninth Street
San Francisco, California 94103
(SEEN)

Cora Kay Blackwelder
Environmental Education
Project
Atlanta Public Schools
2875 Northside Drive, N.W.
Atlanta, Georgia 30305
(SEEN)

Mrs. Myrtle Karr, Larry Montero
State Department of Education
Baton Rouge, Louisiana 70804
(SEEN)

Ron Smetanick
Wootton High School
2100 W. Ritchie Parkway
Rockville, Maryland 20850

Stu Hoverman
Microwatershed Consortium
12 W. Delaware Avenue
Pennington, New Jersey 08534
(SEEN)

Alan McGowan
Scientists' Institute for
Public Information
30 East 68th Street
New York, N. Y. 10021

Joseph Chadbourne, Thomas
Offutt, Peter Gail
Institute for Environmental
Education
8911 Euclid Avenue
Cleveland, Ohio 44106
(SEEN)

Dennis Wint
Center for the Development of
Environmental Curriculum
Willoughby-Eastlake School
District
c/o Garfield School
2705 River Road
Willoughby Hills, Ohio 44094

John Hershey
University City Science Center
3508 Science Center
Philadelphia, Pennsylvania 19104

Wayne Schmipff
Open Lands Project
53 W. Jackson Boulevard
Chicago, Illinois 60604
(SEEN)

Susan Braun
Environmental Education
Resource Center
Park Street School
Kennebunk, Maine 04043
(SEEN)

Dr. William B. Stapp
Department of Natural Resources
University of Michigan
Ann Arbor, Michigan 48104

Mary Louise Williams, Doug Biggs
Social Studies Department
Los Alamos High School
Los Alamos, New Mexico 87544
(SEEN)

Melissa Weiksnar
Nottingham Water Analysis Workshop
175 Nottingham Terrace
Buffalo, N. Y. 14216
(SEEN)

Dorothy L. Scott
Center for Experimental Education
Antioch College
Yellow Springs, Ohio 45387
(SEEN)

Timothy Ash
Catch Project Director
7733 S.E. Raymond Street
Portland, Oregon 97206
(SEEN)

Matthew M. Hickey, Alan Sexton
Project KARE
Blue Bell, Pennsylvania 19422

Wayne R. Schade
Education Service Center
6504 Tracor Lane
Austin, Texas 78721
(SEEN)

Dr. Tom Tanner
Cispus Environmental Education Center
Randle, Washington 98377
(SEEN)

Father Melvin Tracy
J.F.K. Prep
Box 109
St. Nazianz, Wisconsin 54232
(SEEN)

Raymond O'Neill, Chairman
Environmental Education Council
Room 301
1426 N. Quincy Street
Arlington, Virginia 22207

David Kriebel
Union of Young Environmentalists
University of Wisconsin
Green Bay, Wisconsin 54302

INSTITUTE FOR ENVIRONMENTAL EDUCATION

8911 Euclid Avenue, Cleveland, Ohio 44106

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